# THE LIFE HISTORY OF *CHAETOCNEME DENITZA* (HEWITSON) (LEPIDOPTERA: HESPERIIDAE: PYRGINAE)

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**Abstract**

The life history of *Chaetocneme denitza* is described and compared with that of other members of the genus, particularly *C. beata* Hewitson.

## Introduction

Waterhouse (1932) and Common and Waterhouse (1981) give *Lophostemon confertus* (R. Brown) as the host plant of *C. denitza* and state that larvae are reported to live in shelters in the leaves of this tree. Beyond this unconfirmed report, nothing of the early stages of this skipper has been described.

In March 1987, an egg and three 1st and 2nd instar larvae, found on *Lophostemon confertus* in the Nerang/Mudgeeraba area of southern Queensland, were reared to the adult stage in the similar climate of Lismore, New South Wales.

## Life history

*Egg* (Fig. 2). Dome shaped, diameter 1.1 mm at base with 26 prominent vertical ribs; base and summit of dome cream with a circumferential brown band between.

*Larva. 1st instar* (Fig. 3): length 4 mm; head black, finely granulose; prothoracic plate dark brown; body uniform reddish brown with numerous fine dark brown setae. *2nd* and *3rd instars*: length 7 and 11 mm; head uniformly shiny dark brown with deep longitudinal groove; prothoracic plate reddish brown; body green with fine lighter green mottling and five broad transverse bands and a narrow darker green dorsal line; segments 3 to 7 with light brownish pink suffusion laterally; anal segments light orange-brown. *4th instar*: length 18 mm;

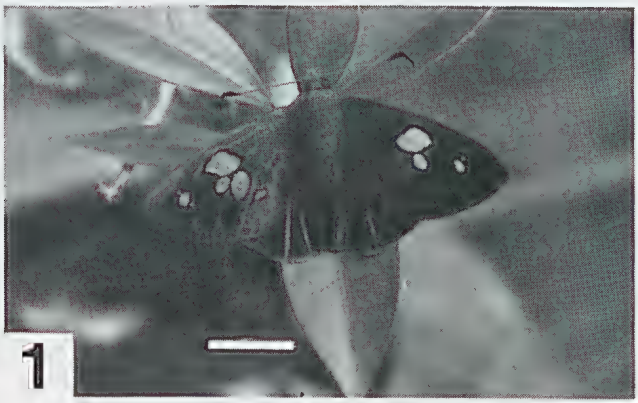



**Fig. 1.** Adult male *C. denitza*. Scale = 10 mm.

head and prothoracic plate cedar-brown with dark brown longitudinal groove between prominent dorsal lobes; body pink-beige with fine cream mottling and darker green bands as 3rd instar; anal segment light brown; prolegs with white spots at bases. *5th* and *6th instar* (Fig. 5): length 25 and 37 mm; as 4th instar but body colour more pronounced pink except thoracic segments and anal plate which are lime green.

*Pupa* (Fig. 7). Length 26 mm; smooth cream, becoming light brown with reddish brown spots.; head dark brown with forked projection; abdominal segments paler with a few brown spots; a white trapezoid patch lined brown on the wings.

**Discussion**

The egg was laid on the upper surface of the leaf about three quarters of the way along its length towards the tip. The larva made two converging incisions from the edge of the leaf which turned parallel for a short distance when about 3 mm apart to form a roughly triangular or bell shaped flap. Silk was laid between the parallel incisions and across the flap, the contraction of which caused the flap to fold over through 180° towards the middle of the leaf and become concave downwards (Fig. 4).

The 2nd instar larva made a similar larger shelter attached by a single thread of silk from the apex to the leaf, and the 3rd instar made a more elongated shelter attached to the leaf with silk threads around its perimeter and rotated sideways so that it lay at right angles to the axis of the leaf.

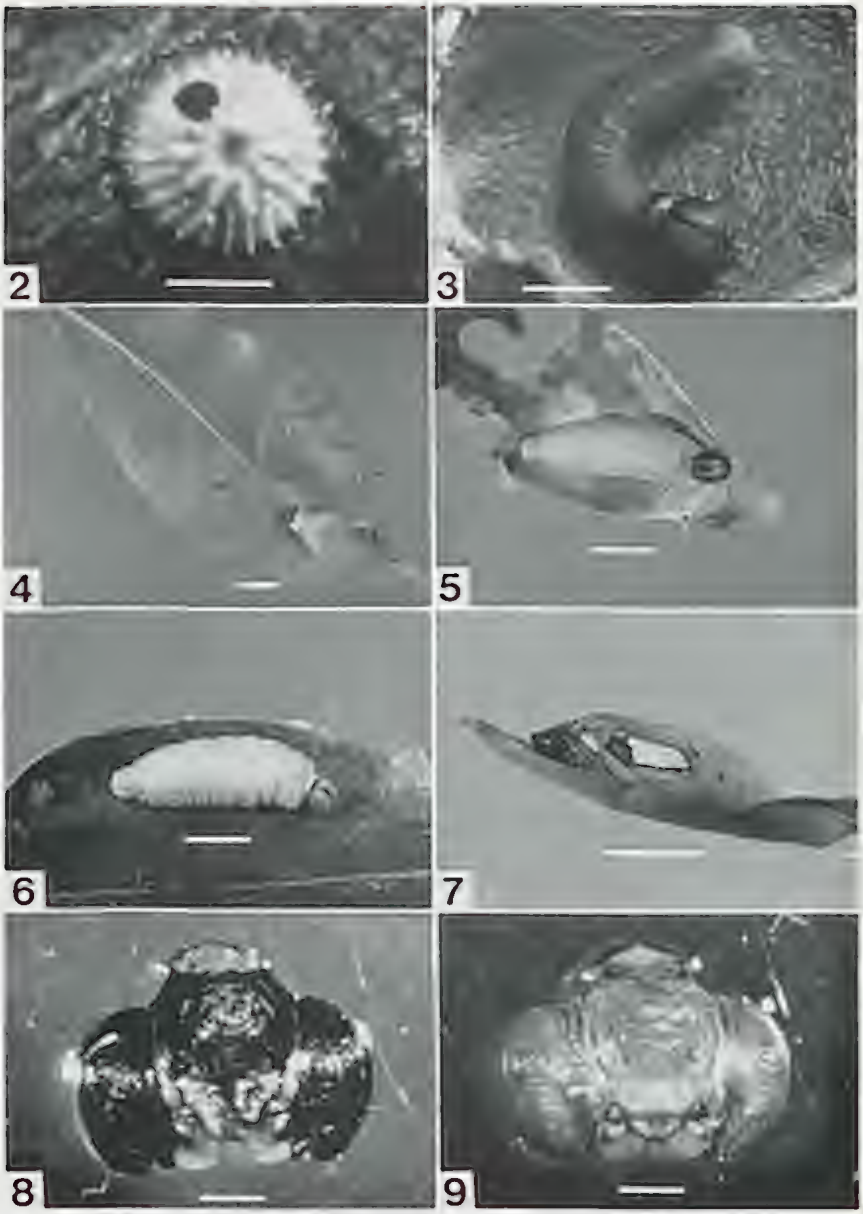
The 4th instar larva usually occupied the third instar shelter for some time before making a larger but otherwise similar one.

Fifth and 6th instars occupied a shelter made by attaching a broad longitudinal segment of one leaf to an adjacent leaf below. Pupation occurred in this shelter, the pupa being attached to the roof of the shelter by a cremaster and central girdle.

The larvae rest during the day on the undersurface of the shelter but when the sun is shining directly on the shelter they frequently rest on the leaf using the flap as shade. Larval feeding occurred at or shortly after dusk, before dawn and occasionally at other times during the night.

Pupal duration was approximately two weeks, adults emerging in late October at or shortly after dusk.

The 1st instar larva and many aspects of the life history of *C. denitza* are difficult to distinguish from those of *C. beata* which was found in the same area, on the same host in identical shelters. The dorsal lobes of the head of 1st to 3rd instar *C. denitza* are more prominent than in *C. beata* giving the former a heart shaped appearance. 2nd and 3rd instar *C. beata* lack the transverse green bands of *C. denitza*. The




**Figs 2-9.** 2: egg (parasitized); 3: 1st instar larva; 4: 1st instar larval shelter with hatched egg; 5: mature larva *C. denitza*; 6: mature larva *C. beata*; 7: pupa *C. denitza*; 8: pupal cap *C. denitza*; 9: pupal cap *C. beata*. Scale bars 2 = 0.5 mm; 3, 8, 9 = 1 mm; 4, 5, 6, 7 = 10 mm.

shape and colour of the head of the latter instars of *C. denitza* is markedly different from *C. beata*. The head of *C. beata* is cream with a narrow black median groove and small rounded dorsal lobes (Fig. 6), whereas that of *C. denitza* is cedar-brown with a broader median groove between more pointed and prominent dorsal lobes. Although final instar larvae of *C. beata* may have a pinkish tinge the prolegs, it is never as pronounced or generalised as in *C. denitza*. The pupal head of *C. beata* (Fig. 9) is cream whereas that of *C. denitza* (Fig. 8) is dark brown. Larvae of *C. critomedia* have a red suffusion but have the head dark brown with a black longitudinal groove and a cream band (Wood 1985). *C. denitza* lacks the head projections found in *C. porphyropis* and is also without the lateral spots of this species (Wood 1984). Unlike other members of the genus, *C. denitza* larvae are sometimes found in open country in direct sunlight, often on the northern side of the host growing on hills and ridges.

First instar larvae of *C. denitza*, like *C. beata* readily make new shelters when transposed to potted *Lophostemon confertus* plants, unlike *C. porphyropis*, whose 1st instar larvae rarely make more than one shelter.

The presence of 1st instar larvae in March and the emergence of adults in October suggest that there are two generations annually in southern Queensland.

*C. denitza* is found in the northern part of the Northern Territory and from Cape York to southern Queensland (Common and Waterhouse 1981). *Lophostemon confertus* is found along the eastern coast of Australia from Newcastle to Fraser Island with isolated stands farther inland in southern Queensland, and also in northern Queensland (Boland et al. 1984). It seems probable therefore, that other food plants will be discovered.

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